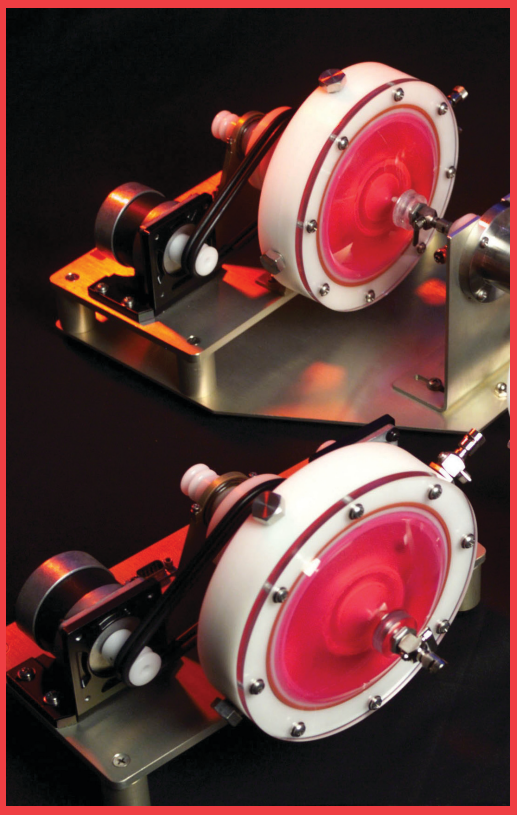
Monday April 14th, 09:00-10:00am



"The findings have driven the development of ground-based strategies that enable specific strategies to be conducted on Earth."

Space Cellular Biotechnology

N.R. Pellis
J.M. Jessup

SESSION ABSTRACT:

Living systems respond to the physical force changes that occur in microgravity, and consequently drives adaptations that enhance survival in the new environment. The changes are evident at the cellular, tissue, organ, system and organismal levels. Investigation of the cellular and molecular responses to microgravity has opened new opportunities into understanding basic mechanisms in the cell process, novel strategies for cell culture and tissue engineering, models of human disease and unique products with pharmaceutical applications. NASA-sponsored research in cell biology has revealed that microgravity significantly affects cellular movement, differentiation, cell-cell interactions, synthesis of intracellular matrix and propagation into functional three-dimensional tissue assemblies. The findings have driven the development of ground-based strategies that enable specific strategies to be conducted on Earth. No doubt, investigations in microgravity will continue to seed new findings, leading to new strategies that will enable adaptation of these discoveries to ground-based biomedical applications.

SPEAKERS:

Neal R. Pellis, Ph.D., ISS Program Scientist, NASA HQ and Chief, Biological Systems Office, Johnson Space Center, Houston, TX.
Title of presentation: Microgravity Cell Science: Cells in space and in ground-based microgravity analog cultures

J. Milburn Jessup, M.D., Department of Surgery, Georgetown University Medical Center, Washington, D.C.
Title of presentation: Microgravity Culture Reduces Apoptosis to Levels Observed in Stationary 3-D Spheroids

Timothy G. Hammond, M.B., B.S., Professor, Department of Internal Medicine, Section of Nephrology, Tulane University Health Sciences Center, and Associate Chief of Staff - Research, VA Medical Center, New Orleans, LA
Title of presentation: Mechanisms of renal cells response to true and simulated microgravity

Herman H. Vandenburgh, Ph.D., Professor, Department of Bio Med Pathology & Laboratory Medicine, Brown University Miriam Hospital, Providence, RI
Title of presentation: Tissue Engineering Skeletal Muscle for Microgravity Research